

WHEAT BLAST AND ITS EFFECT ON TECHNOLOGICAL QUALITY OF GRAIN FROM TWO SOWING DATES

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The fungus *Magnaporthe oryzae* (anamorph *Pyricularia oryzae*) causes blast disease (or “brusone”, in Portuguese), which is a usual disease on rice. On wheat, the first report was in 1985 in Paraná State, south of Brazil. Wheat blast produces detrimental effects on the wheat production of Brazilian Cerrado areas, as for wrinkled grains and low specific volume. It is supposed that the sowing date has influence in brusone wheat occurrence. So, the aim of this study was to investigate if wheat technological quality is affected by blast disease in grain samples obtained from two sowing dates in 2015 (first and second, with high and low brusone content, respectively), in Patos de Minas, MG, Brazil. Twelve wheat samples were analysed in each sowing date, totalizing 24 samples, in duplicate or triplicate, according to the used method. Wheat samples were characterized for blast incidence, severity, and grain yield (GY) in the field, and for wheat technological quality (WTQ), with their respective parameters, in the laboratory. WTQ was performed by hectoliter weight (HW), thousand kernel weight (TKW), grain hardness index (GHI), grain diameter (GDIAM), grain falling number (GFN), flour yield (FY), grain protein (GP), solvent retention capacity (SRC), gluten content (GI, gluten index; WG, wet gluten; and DG, dry gluten), flour color (L*, a*, and b* values), alveography (W, gluten strength; P, tenacity; L, extensibility; P/L ratio; G, swelling index; and EI, elasticity index), farinography (WA, water absorption and STB, stability), and bread evaluation (SV, specific volume; BS, bread score; and crumb color). The incidence of brusone presented negative correlations with GY, HW, and TKW. Severity showed positive correlations with TKW, GDIAM, and a* value (tendency to red color). Grain yield was positively correlated with HW, TKW, GDIAM, SRC (lactic acid), DG, L, and G, and negatively correlated with P/L ratio. The baking test showed that brusone samples did not affect specific volume and internal characteristics of bread, but affected its external characteristics, as for aroma and taste of bread, although, comparing the two dates in bread evaluation, no differences were observed between the breads. In the first sowing date, with the higher brusone content, some mean values were different from the second sowing date: GY (lower value), TKW (lower value), GFN (higher value), and dough extensibility (lower L); for the other parameters, there was very slight variation in the results. The small variation on the most of WTQ characteristics of samples, with high and low content of wheat blast, may be a consequence of the similar severity degree found between them.

Keywords: *Magnaporthe*; *Triticum*; bread; physicochemical analysis; rheological properties